

CLAIMS

[1] A coating composition characterized by comprising at least

(1) titanium dioxide fine particles with eliminated or reduced photocatalytic activity, wherein the titanium dioxide fine particles is obtained by surface-treating titanium dioxide fine particles doped with cobalt capable of capturing free electrons and/or holes, with a zinc chelate compound capable of capturing free electrons and/or holes,

- (2) a binder component,
- (3) a dispersant, and
- (4) an organic solvent.

[2] A coating composition characterized by comprising at least

(1) titanium dioxide fine particles with eliminated or reduced photocatalytic activity, wherein the titanium dioxide fine particles is obtained by surface-treating titanium dioxide fine particles doped with cobalt capable of capturing free electrons and/or holes, with a zinc chelate compound capable of capturing free electrons and/or holes, and further coating the surface treated titanium dioxide fine particles with an anionic polar group-containing organic compound and/or organometal compound,

- (2) a binder component,
- (3) a dispersant, and
- (4) an organic solvent.

[3] A coating composition characterized by comprising at least

(1) titanium dioxide fine particles with eliminated or reduced photocatalytic activity, wherein the titanium dioxide fine particles is obtained by coating titanium dioxide fine particles doped with cobalt capable of capturing free electrons and/or holes, with an inorganic compound capable of reducing or eliminating photocatalytic activity, and further

surface-treating the coated titanium dioxide fine particles with a zinc chelate compound capable of capturing free electrons and/or holes,

- (2) a binder component,
- (3) a dispersant, and
- (4) an organic solvent.

[4] A coating composition characterized by comprising at least

(1) titanium dioxide fine particles with eliminated or reduced photocatalytic activity, wherein the titanium dioxide fine particles is obtained by coating titanium dioxide fine particles doped with cobalt capable of capturing free electrons and/or holes, with an inorganic compound capable of reducing or eliminating photocatalytic activity, further surface-treating the coated titanium dioxide fine particles with a zinc chelate compound capable of capturing free electrons and/or holes, and further coating the surface treated titanium dioxide fine particles with an anionic polar group-containing organic compound and/or organometal compound,

- (2) a binder component,
- (3) a dispersant, and
- (4) an organic solvent.

[5] The coating composition according to any one of claims 1 to 4, characterized in that the organometallic compound of zinc is one or at least two compounds selected from the group consisting of zinc acetylacetone, zinc benzoate, zinc acetate, and zinc 2-ethylhexylate.

[6] The coating composition according to claim 3 or 4, characterized in that the inorganic compound is fine particles of one or at least two metal oxides selected from alumina, silica, zinc oxide, zirconium oxide, tin oxide, antimony-doped tin oxide, and indium-doped tin oxide.

[7] The coating composition according to any one of claims 1 to 4, characterized in that the titanium dioxide fine particles having reduced photocatalytic activity has a primary particle diameter of 0.01 to 0.1 μm .

[8] The coating composition according to claim 2 or 4, characterized in that the anionic polar group-containing organic compound is an organic carboxylic acid.

[9] The coating composition according to claim 2 or 4, characterized in that the anionic polar group-containing organometal compound is a silane coupling agent and/or a titanate coupling agent.

[10] The coating composition according to any one of claims 1 to 4, characterized in that the dispersant contains an anionic polar group.

[11] The coating composition according to any one of claims 1 to 4, characterized in that the binder component is ionizing radiation curable.

[12] The coating composition according to any one of claims 1 to 4, characterized in that the organic solvent is a ketone solvent.

[13] The coating composition according to any one of claims 1 to 4, characterized by comprising 10 parts by weight of the titanium dioxide fine particles having reduced photocatalytic activity, 4 to 20 parts by weight of the binder component, and 2 to 4 parts by weight of the dispersant.

[14] The coating composition according to any one of claims 1 to 4, characterized by comprising 1-hydroxy-cyclohexyl-phenyl-ketone and/or 2-methyl-1-[4-(methylthio)phenyl]-2-morpholinopropan-1-one

as a photoinitiator.

[15] The coating composition according to any one of claims 1 to 4, characterized in that the organic solvent is contained in an amount of 50 to 99.5 parts by weight based on 0.5 to 50 parts by weight of the total solid content of the coating composition.

[16] A coating film characterized by being produced by coating a coating composition according to any one of claims 1 to 15 onto a surface of an object and curing the coating composition, wherein

the coating film has a refractive index of 1.55 to 2.20 when the thickness of the film after curing is 0.05 to 10 μm ,
the haze value of the coating film as measured integrally with a base material according to JIS K 7361-1 is not different from the haze value of the base material *per se*, or is different by not more than 1% from the haze value of the base material *per se*.

[17] A coating film characterized by comprising (1) titanium dioxide fine particles with reduced photocatalytic activity, wherein the titanium dioxide fine particles is obtained by surface-treating titanium dioxide fine particles doped with cobalt capable of capturing free electrons and/or holes, with an organometal compound of Zn capable of capturing free electrons and/or holes, (2) a dispersant and (3) a cured binder, wherein

(1) the titanium dioxide fine particles and (2) the dispersant are uniformly mixed into (3) the cured binder,
the coating film has a refractive index of 1.55 to 2.20 when the thickness of the film after curing is 0.05 to 10 μm ,
the haze value of the coating film as measured integrally with a base material according to JIS K 7361-1 is not different from the haze value of the base material *per se*, or is different by not more than 1% from the haze value of the base material *per se*.

[18] A coating film characterized by comprising (1) titanium dioxide fine particles with eliminated or reduced photocatalytic activity, wherein the titanium dioxide fine particles is obtained by surface-treating titanium dioxide fine particles doped with cobalt capable of capturing free electrons and/or holes, with an organometal compound of Zn capable of capturing free electrons and/or holes, and further coating the surface treated titanium dioxide fine particles with an anionic polar group-containing organic compound and/or organometal compound, (2) a dispersant and (3) a cured binder, wherein (1) the titanium dioxide fine particles and (2) the dispersant are uniformly mixed into (3) the cured binder, the coating film has a refractive index of 1.55 to 2.20 when the thickness of the film after curing is 0.05 to 10 μm , the haze value of the coating film as measured integrally with a base material according to JIS K 7361-1 is not different from the haze value of the base material *per se*, or is different by not more than 1% from the haze value of the base material *per se*.

[19] A coating film characterized by comprising (1) titanium dioxide fine particles with eliminated or reduced photocatalytic activity, wherein the titanium dioxide fine particles is obtained by coating titanium dioxide fine particles doped with cobalt capable of capturing free electrons and/or holes, with an inorganic compound capable of reducing or eliminating photocatalytic activity, and further surface-treating the coated titanium dioxide fine particles with an organometal compound of Zn capable of capturing free electrons and/or holes, (2) a dispersant and (3) a cured binder, wherein (1) titanium dioxide fine particles and (2) the dispersant are uniformly mixed into (3) the cured binder, the coating film has a refractive index of 1.55 to 2.20 when the thickness of the film after curing is 0.05 to 10 μm , the haze value of the coating film as measured integrally with a base material according to JIS K 7361-1 is not different from the haze value of the base material *per se*, or is different by not

more than 1% from the haze value of the base material *per se*.

[20] A coating film characterized by comprising (1) titanium dioxide fine particles with eliminated or reduced photocatalytic activity, wherein the titanium dioxide fine particles is obtained by coating titanium dioxide fine particles doped with cobalt capable of capturing free electrons and/or holes, with an inorganic compound capable of reducing or eliminating photocatalytic activity, further surface-treating the coated titanium dioxide fine particles with an organometal compound of zinc capable of capturing free electrons and/or holes, and further coating the surface treated titanium dioxide fine particles with an anionic polar group-containing organic compound and/or organometal compound and (2) a dispersant, and (3) a cured binder, wherein

(1) titanium dioxide fine particles and (2) the dispersant are uniformly mixed into (3) the cured binder,
the coating film has a refractive index of 1.55 to 2.20 when the thickness of the film after curing is 0.05 to 10 μm ,
the haze value of the coating film as measured integrally with a base material according to JIS K 7361-1 is not different from the haze value of the base material *per se*, or is different by not more than 1% from the haze value of the base material *per se*.

[21] An antireflective film characterized by comprising a laminate of two or more light-transparent layers, wherein the two or more light-transparent layers are transparent to light and are different from each other in refractive index, at least one of the light-transparent layers is a coating film according to any one of claims 16 to 19.

[22] An image display device comprising an antireflective film according to claim 21 covering a display surface.